

REMARKS

The office action dated December 31, 2002, was not received by the Applicants or their representatives. Accordingly, Examiner Lewis was contacted and notified that the final Office action was not received. Examiner Lewis was kind enough to restart the period for response, beginning April 18, 2003. Reconsideration of the application is respectfully requested in view of the foregoing amendments and following remarks. Claims 1-30 are pending and no claims have been allowed.

Applicants have amended claim 1 to further recite, "wherein creating the association comprises considering semantics related to the actions in the application." This amendment adds no new matter and should not necessitate any new search on the part of the Office because similar subject matter was recited in the claims as originally filed. For instance, claim 4 as originally filed recites in part, "wherein creating the association further includes linking a control-semantic set to an action-semantic set by way of a genre, wherein the genre is a set of actions common to applications of a similar type." Claim 8 as originally filed recited in part, "wherein the API binds actions of the application to semantics in a genre by using a structure having an action value, a predefined action semantic associated with the action value, and a label for the action."

Applicants have also amended claim 4 to correct a typographical error. Again, this amendment adds no new matter and should not necessitate any new search on the part of the Office.

Rejection of claims 1-30 under 35 U.S.C. § 102(e)

The action rejects claims 1, 20, and 22 as being are unpatentable under 35 U.S.C. §102 (e) over McCauley, U.S. Patent 6,263,392, ("McCauley"). The action also rejects claims 1-19 and 21-30 as unpatentable under 35 U.S.C. §102 (e) over Chan, et al., U.S. Patent 5,991,546, ("Chan"). All rejections are respectfully traversed. For a 102(e) rejection to be proper, the cited art must show each and every element as set forth in a claim. (See MPEP § 2131).

Claim 1 over McCauley

Claim 1, as amended, is directed a system for mapping an input device's controls with an application and recites in part, "an application program interface that receives calls from the

application, the application program interface including a call that creates an association between actions in the application and the controls on the input device, *wherein creating the association comprises considering semantics related to the actions in the application.*”

McCauley fails to teach or suggest at least this feature of claim 1.

McCauley is generally directed to a method and apparatus for interfacing multiple peripheral devices to a host computer. More specifically, McCauley discloses a universal game computer interface ("UGCI") that includes an operating system that enables the UGCI to accept peripheral data packets and signal data, format the received data packets and signal data into human input devices ("HID") report descriptors and HID reports, and transmit the HID reports over a USB cable to the host PC. (McCauley column 6, lines 1-6). The interface controller also transmits descriptors corresponding to each peripheral device to the host PC. (McCauley column 7, line 67 to column 8, line 2).

The action alleges that McCauley teaches the features of claim 1. Specifically, the action states “[w]hen an input device is plugged into the arcade game system, it is identified as a specific type of device (i.e. trackball), and the interface system thereafter generates a trackball report which is an association between actions in the game application and the controls of the input device.”

The report generated in McCauley that the action alleges is an association does not consider any “semantics related to the actions in the application,” as recited in claim 1. McCauley describes the report at col. 3, lines 35-44 as:

a self-descriptive formatted data packet, such as a HID report descriptor, that describes a particular peripheral device. The formatted self-descriptive data packet relates the personality or archetype of the originating peripheral device to a particular archetype model structure contained in the software module, and typically further describes individual design elements, and the nature and relatedness of the elements, of the peripheral device within the context of the referenced archetype model.

Thus, the reports in McCauley contain information related to the device that enables a host computer to communicate with the device. However, the information is related to the device and does not contain any information, such as semantics, *related to the actions in an application*. By contrast, claim 1 recites creating an association between actions in the application and the controls on an input device by “considering semantics related to the actions in the application,” as recited in claim 1. For example, page 4, lines 4-10 of the application explains:

Each semantic in the driving game genre represents an abstract action that a driving game may be able to perform, such as “steer,” “accelerate,” and “decelerate.” A steering wheel device may correlate the “steer” semantic with turning the steering wheel, and the “accelerate” and “decelerate” semantics with the right and left pedals. A driving game application may correlate the “steer,” “accelerate,” and “brake” semantics with the game actions of turning, speeding up, and slowing down, respectively. The Mapper API maps each device control into the game action associated with the same semantic. The Mapper API uses these correlations to map device controls into software actions; for example, the steering wheel maps to the action of turning the car, and the right and left pedals map to the actions of speeding up and slowing down the car.

In other words, the association created in claim 1 between the controls of the device and actions of the application takes into consideration semantics related to the action of the application, such as “steer,” “accelerate,” and “decelerate” in the driving application example above. McCauley does not teach or suggest any such feature. Therefore, claim 1 should now be in condition for allowance. Claims 2-21, which depend on claim 1, should be allowable for at least the same reasons, as well as the respective features recited therein.

Claim 1 over Chan

In general, Chan is directed to a system and method for interfacing peripheral devices to a computer universal serial bus. The interfacing system includes a serial EEPROM that is accessed to map sensed key locations for one or more keys into the value that is to be transmitted to the USB. A keyboard-processing capability maps vendor-specific keycodes of the detected keys to their corresponding HID values, which are USB-standardized keycodes, using vendor-supplied tables stored in the EEPROM. (Chan column 5, lines 14-20). Chan is primarily concerned with transmitting standardized USB keycodes from a variety of peripheral devices connected to the USB.

The action alleges that Chan suggests all features of claim 1. Specifically, the action states “when the programs inherently call for the input key combinations, it uses the association between actions in the application and the input key combinations, as detailed by the information stored in the EEPROM.”

The information that the action alleges is association information in Chan is described as “configuration, vendor, and mapping sequences which enable the processor to operate rapidly to map one or more actuated keys to a data output representing the operator’s command. The serial

EEPROM also operates to exchange information from the peripheral device to the host with a unique handshake protocol which prevents conflicts when accessing the EEPROM.”

The information on the EEPROM in Chan is a table that translates key locations to a corresponding standardized USB keycode to enable the device to communicate with a host computer. However, the information in Chan is specific to the peripheral device and a USB protocol. The “configurable parameter sets, for the keyboard, ps/2 device, and other various I/O devices,” “vendor specific input device codes,” “HID values, which are standardized keycodes,” etc. contained in the EEPROM have nothing to do with the actions of an application. The information in the EEPROM is simply used to establish communication. None of this information, even given its broadest interpretation, could be construed to suggest to one of skill in the art “semantics related to actions in an application,” such as “steer,” “accelerate,” and “decelerate” in the driving application example previously discussed. Therefore, Chan does not teach or suggest creating an association between actions in an application and the controls on an input device by “considering semantics related to the actions in the application,” as recited in claim 1.

Since the Chan fails to show at least one feature of claim 1, claim 1 should now be in condition for allowance. Claims 2-21, which depend on claim 1, should be allowable for at least the same reasons, as well as the respective features recited therein.

Claim 4 over Chan

Claim 4 depends from claim 1 and recites in part, “wherein creating the association further includes linking a control-semantic set to an action-semantic set by way of a genre, wherein the genre is a set of actions common to applications of a similar type.”

Chan fails to teach or suggest at least this feature of claim 4.

The action alleges that Chan teaches the features of claim 4. Specifically, the action states “wherein said the EEPROM 24 stores configurable parameter sets, for the keyboard, ps/2 device, and other various I/O devices, allowing reporting capabilities of the USB interface, wherein maps of vendor specific input device codes are corresponded to HID values, which are USB standardized keycodes, having known peripheral archetype structures for specific input device types.”

Claim 4 recites “linking a control-semantic set to an action-semantic set by way of a genre.” As explained with respect to claim 1, the information on the EEPROM in Chan is simply used to

establish communication and is not in any way related to semantics related to the actions of an application. Additionally, claim 4 recites “wherein the genre is a set of actions common to applications of a similar type.” Again, Applicants refer to the specification to clarify that Chan is completely silent with respect to a genre that is a set of actions common to applications of a given type. For example, page 4, lines 14-18 explain:

The system may include several genres, where the different genres are appropriate for different types of applications. For example, in addition to the driving game genre described above, there could be a flight-simulation genre and a computer-aided design (CAD) genre. Devices may specify which genres they work well with and may provide a correlation between their controls and the semantics from each such genre.

Since Chan fails to teach or suggest, “wherein creating the association further includes linking a control-semantic set to an action-semantic set by way of a genre, wherein the genre is a set of actions common to applications of a similar type,” as recited in claim 4, claim 4 should now be in condition for allowance.

Claim 22 over McCauley

Claim 22 is directed a method for communicating between an input devince and an application in a system and recites:

- (a) issuing, from the application, a call to enumerate a suitability of input devices installed in the system, the call including an array of actions that the application uses;
- (b) in response to the application call, examining the input devices installed on the system by comparing controls on the input devices with actions used by the application;
- (c) ranking the input devices based on the comparison; and
- (d) providing the application with at least the highest ranked input device that most closely matches the actions of the application.

The action alleges that McCauley teaches the features of claim 22 at various places in col. 3 and col. 4. Specifically, the action states

Wherein ranking is on the basis of HID class or type of the peripheral device sensed, further wherein HID report descriptors corresponding to the device are created and transmitted to the host computer during the enumeration process cycle. A

highest ranked input device is signified by the sensed and identified input device causing HID report descriptors to be produced of a particular ranked archetype when the reading of peripheral state information may be indicative of instantaneous input device actuation.

Applicants strongly disagree with these assertions and respectfully submit that there are absolutely no passages in McCauley to support such assertions. There are no passages in McCauley that would suggest any ranking of peripheral devices. Similarly there are no passages that suggest a "highest ranked input device."

The action cites col. 3, lines 1-15 and col. 4, lines 1-15. Col. 3, lines 1-15 is as follows:

A preferred embodiment of the method of the present invention includes the reading of peripheral state information of certain peripheral devices by an interface control module, where the peripheral state information may be indicative of an instantaneous mechanical position of an analog potentiometer and/or indicative of an alternately manually depressed and released button. The interface control module transmits formatted data packets, such as HID report descriptors, and formatted signal data, such as HID reports, to the host computer via a communications interface, or bus. The HID report descriptors are substantively formatted according to the HID standard and the archetype and/or structure of the corresponding peripheral device. Each HID report is formatted substantively in accordance with the HID standard and a reading of the state information as read from a specific peripheral device.

This passage contains no teaching or suggestion to rank input devices based on a comparison of controls of a device with actions used by an application, nor any teaching or suggestion of a "highest ranked input device."

Col. 4, lines 1-15 is as follows:

The interface control module operating system is preprogrammed to recognize and expect that a particular HID class or type of peripheral device will be connected to a particular connector of the interface control module. A HID report descriptor corresponding to a HID peripheral archetype, that relates to the expected HID peripheral class or type, is then created and transmitted to the host computer during an enumeration process cycle of the interface control module. Appropriately formatted HID reports are thereafter generated by the interface control module, and transmitted to the host computer, on the basis of the HID class or type of peripheral device and the instantaneous state data read from the peripheral device by the interface control module.

Likewise, this passage also contains no teaching or suggestion to rank input devices based on a comparison of controls of a device with actions used by an application, nor any teaching or suggestion of a "highest ranked input device." Even if transmitting HID reports

to the host computer “on the basis of the HID class or type of peripheral device,” could be construed as suggesting “ranking input devices,” which applicants submit is untrue, the basis of the ranking in McCauley, the HID class or type of device, is device-specific. The basis for the ranking of input devices in claim 22 is not device-specific. Rather, the basis is a comparison of “controls on the input devices with actions used by the application.”

Since McCauley completely fails to teach or suggest at least one feature of claim 22, claim 22 should now be in condition for allowance. Claims 23-26, which depend on claim 1, should be allowable for at least the same reasons, as well as the respective features recited therein.

Claim 22 over Chan

The action alleges that Chan teaches “ranking the input devices based on the comparison,” at col. 3, lines 20-30. Specifically, the action states “[e]ach input device, is ranked with a unique address according to the USB standard, and further priority ranked according to a first to be activated, first to be processed system via the serial EEPROM.”

Applicants respectfully disagree with these assertions and submit Chan would not suggest to one of skill in the art to rank input devices based on a comparison of controls of a device with actions used by an application, as recited in claim 22.

Col. 3, lines 20-30 read as follows:

Although the keyboard and mouse have significantly different operative characteristics, the data from both is requested under USB control, verified, buffered, and transferred, with device characteristics being taken into account in building the message frame sequences called for by the USB. To this end, the EEPROM is written for the particular input devices so as to incorporate configuration, vendor, and mapping sequences which enable the processor to operate rapidly to map one or more actuated keys to a data output representing the operator's command. The serial EEPROM also operates to exchange information from the peripheral device to the host with a unique handshake protocol which prevents conflicts when accessing the EEPROM.

In this passage, Chan discloses an interface that receives requests from a host, determines whether the request is made to a keyboard or a mouse, and returns the corresponding data type to the host in an appropriate format. This is accomplished using “configuration, vendor, and mapping sequences” to map actuated keys to a data output consistent with the USB protocol. Nothing in this passage could be understood to suggest a ranking of input devices based on a comparison of controls

of a device with actions used by an application, as recited in claim 22. Likewise, no other passage in Chan suggests the ranking feature of claim 22.

Since Chan fails to show at least one feature of claim 22, claim 22 should now be in condition for allowance. Claims 23-26, which depend on claim 22, should be allowable for at least the same reasons, as well as the respective features recited therein.

Claim 27 over Chan

Claim 27 is directed a method for mapping an input device's controls with an application in a system and recites in part, "reading a structure that includes action values and action semantics associated with the action values, the action values being defined by the application."

The action alleges that Chan teaches this feature of claim 27 at col. 3, lines 55-65, and col. 5, lines 14-21.

Col. 3, lines 55-65 state:

The serial EEPROM is accessed to map the sensed key locations for one or more keys into the value that is to be transmitted to the USB. The system is advantageously organized in the processor and engine configuration so that low cost standard and ASIC circuit units may be employed. It accepts the intermittent and relatively low and medium speed inputs from the operator-controlled devices and meets all the USB requirements for identification, error detection and correction, hand shaking, and message transfer. Thus, it is fully consistent with the objectives of the USB in terms of low cost, expandability and achieving true plug and play capability.

This passage contains no teaching or suggestion to read "a structure that includes action values and action semantics associated with the action values, the action values being defined by the application." It is absolutely silent as to actions values being defined by the application, as well as any action semantics associated with the action values.

Col. 5, lines 14-21 state:

Subsequent to successfully debouncing a combination of detected keys, the keyboard-processing capability 4 maps the vendor-specific keycodes of the detected keys to their corresponding Human Input Device (HID) values, which are USB-standardized keycodes, using vendor-supplied tables stored in the serial EEPROM 24. In turn, the keyboard-processing capability 4 builds a Keyboard Input Report consisting of the HID values and formatted according to USB descriptor information obtained from the serial EEPROM 24.

This passage in Chan describes mapping vendor-specific keycodes to their corresponding HID values, which are USB standardized keycodes, using vendor-supplied tables stored in the EEPROM. A report is then created including the proper HID values and formatted according to the vendor-provided table in the EEPROM. However, claim 27 recites, “a structure that includes action values and action semantics associated with the action values, *the action values being defined by the application.*” Neither of the “vendor-specific keycodes (supplied by the vendor of the peripheral device),” or “HID values (USB standardized keycodes),” are “defined by the application,” as recited in claim 27. Thus, Chan could not possibly teach or suggest “reading a structure that includes action values and action semantics associated with the action values, the action values being defined by the application.”

Since Chan fails to show at least one feature of claim 27, claim 27 should now be in condition for allowance. Claims 28 and 29, which depend on claim 27, should be allowable for at least the same reasons, as well as the respective features recited therein.

Claim 30 over Chan

Claim 30 is directed a computer-readable medium including computer-executable instructions to perform a method for using a computer input device with a software application, and recites in part, “an application program interface, responsive to a call from an application, that returns an enumeration of input devices that substantially match the actions of the application.”

The action alleges that “an API, responsive to a call from an application, that returns an enumeration of input devices that substantially match the actions of the application,” is taught by Chan at column 5, lines 35-65. This passage in Chan discloses a PS/2 device processing capability that processes data from the host and makes it available to the PS/2 device and a host-processing capability that waits for device data requests from the host. (Chan column 5, lines 15-50). The host-processing capability receives requests from a host, determines whether the request is made to a keyboard or a mouse, and returns available device reports. (Chan column 5, lines 35-50). Chan, col. 5, lines 50-65 further explains that the device reporting capabilities in the USB interface can also report the availability of numerous other devices.

However, Chan is concerned with the type of device that is being connected (mouse, keyboard, serial devices, parallel devices, etc) such that data from each of the devices can be “requested under USB control, verified, buffered, and transferred with device characteristics being taken into account in building the message frame sequences called for by the USB.” *See* Chan, col. 3, lines 19-23. This process is silent as to “actions of the applications.” The actions of the applications are irrelevant to a process for translating between the individual characteristics of the input device and the USB protocol. Therefore, this process does not disclose “an application program interface, responsive to a call from an application, that returns an enumeration of input devices that substantially match the actions of the application.”

Since Chan fails to show at least one feature of claim 30, claim 30 should now be in condition for allowance.

Rejection of Claim 27 over McCauley in view of Chan under § 103

The Action rejects claim 27 under 35 U.S.C. § 103(a) as unpatentable over McCauley in view of Chan. Applicants respectfully submit the claims in their present form are allowable over the cited art. To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. (MPEP § 2142.) Motivations to combine or modify references must come from the references themselves or be within the body of knowledge in the art. (*See* MPEP § 2143.01.) The rejection is respectfully traversed.

Claim 27

As discussed previously with respect to claim 27, Chan fails to teach or suggest “reading a structure that includes action values and action semantics associated with the action values, the action values being defined by the application.”

McCauley fails to remedy the deficiencies of Chan. As explained previously, McCauley discloses a universal game computer interface (“UGCI”) that includes an operating system that

enables the UGCI to accept peripheral data packets and signal data, format the received data packets and signal data into human input devices ("HID") report descriptors and HID reports, and transmit the HID reports over a USB cable to the host PC. (McCauley column 6, lines 1-6). The interface controller also transmits descriptors corresponding to each peripheral device to the host PC. (McCauley column 7, line 67 to column 8, line 2).

At col. 3, lines 35-44, McCauley describes construction of a device-specific data structure from a self-descriptive formatted data packet (HID report descriptor), "that describes the particular peripheral device. The formatted self-descriptive data packet related the personality or archetype of the originating peripheral device to a particular archetype model structure contained in the software module, and typically further describes individual design elements, and the nature and relatedness of the elements, of the peripheral device with in the context of the referenced archetype model." Similar to Chan, McCauley only describes device-specific information. Neither the formatted data packet, nor the data structure constructed based on the packet, contain any information pertinent to "action values" defined by the application or "action semantics associated with the action values."

Since the applied art, either alone or in combination, fails to show at least one feature of claim 27, claim 27 should now be in condition for allowance. Claims 28 and 29, which depend on claim 27, should be allowable for at least the same reasons, as well as the respective features recited therein.

CONCLUSION

The claims in their present form should now be allowable. Such action is respectfully requested.

Respectfully submitted,

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